MAFF Ministry of Agriculture Fisheries and Food

STATEMENT OF PHYSICAL CHARACTERISTICS
AND
AGRICULTURAL LAND CLASSIFICATION
A1M - SPRING BANK FARM, NORTH YORKSHIRE
PROPOSED BORROW PIT EXTENSION
JANUARY 1994

ADAS
Leeds Statutory Group

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SUMMARY

A Statement of Physical Characteristics and an Agricultural Land Classification of 13.2 ha of land north of the A59 York Road, Flaxby (adjacent to an existing borrow pit) was carried out in January 1994.

At the time of the survey, all of this land was in agricultural use of which 4.5 ha falls within Grade 2. Soils within this grade consist of deep well drained profiles (Wetness Class I) consisting of very slightly stony medium sandy loam and medium clay loam topsoils over medium clay loam and heavy clay loam subsoils. Pockets of sand and gravel occur in patches. Slight soil droughtiness and topsoil stoniness limit this land to Grade 2.

Subgrade 3a land covers 7.4 ha are well to imperfectly drained (Wetness Class I to III) and topsoils consist of very slightly stony (5% hard stones over 6 cm in size) medium sandy loam and medium clay loam. Subsoils consist of very slightly stony medium clay loam and gleyed slowly permeable heavy clay loam and clay. Again pockets of sand and gravel are found at depth. This land is limited to Subgrade 3a by topsoil stoniness and variability in soil physical characteristics.

Subgrade 3b land covers 1.3 ha. Soils are well drained (Wetness Class I) and consist of very slightly stony (12%) medium sandy loam topsoils overlying very stony (50% hard stones) medium sandy loam subsoils. Soils were found to be impenetrable below 80 cm and the land is limited to Subgrade 3b by severe soil droughtiness.

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STATEMENT OF PHYSICAL CHARACTERISTICS AND AGRICULTURAL LAND CLASSIFICATION REPORT ON THE PROPOSED BORROW PIT AT SPRING BANK FARM, FLAXBY, NORTH YORKSHIRE

1. INTRODUCTION AND STATEMENT OF PHYSICAL CHARACTERISTICS

1.1 Location and Survey Methods

The site is located around Grid Reference SE 401584 approximately 5 km east of Knaresborough. It covers a total of 13.2 ha, all of which was in agricultural use at the time of the survey.

Survey work was carried out in January 1994 when soils were examined by hand auger borings at 100 m intervals predetermined by the National Grid. Two soil inspection pits were dug to allow full profile descriptions to be made. The assessment of land quality was made using the methods described in "Agricultural Land Classification of England and Wales; Revised guidelines and criteria for grading the quality of agricultural land" (MAFF 1988).

1.2 Land Use and Relief

Altitude varies between 44 m and AOD and 61 m AOD and level to gently sloping (1 - 3°). At the time of the survey all of the land was in arable use.

1.3 Climate

Grid Reference	:	SE 401584
Altitude	:	50
Accumulated Temperature above 0°C (January - June)	:	1347 day °C
Average Annual Rainfall (mm)	:	662
Climatic Grade	:	1
Field Capacity Days	:	157
Moisture Deficit (mm) Wheat	:	101
Moisture Deficit (mm) Potatoes	:	90

1.4 Geology, Soils and Drainage

The site is underlain by Triassic Sherwood Sandstone. Solid strata, however, do not occur within 1 m of the surface and soils have developed on drift deposits consisting of light textured till, glacial lake deposits of silt and clay, and glaciofluvial sand and gravel.

Topsoils are usually of medium sandy loam and medium clay loam. Subsoils consist of medium sandy loam or medium clay loam, with heavy clay loam found at depth in some areas and occasional patches of loamy sand. Profiles are generally well drained (Wetness Class I), although occasional patches of gleyed clay were found. Topsoils are mainly very slightly to slightly stony, with subsoils being very slightly to very stony. Soils on the site correspond with the Escrick 2 Association as mapped by the Soil Survey and Land Research Centre.

1.5 Soil Properties

One main soil type occurs on this site, a description of which is given below. Topsoil and subsoil resources are also shown on the accompanying maps along with soil thickness and volume information.

(a) Soil Type 1:- Light/Medium over Medium/Heavy textured soils (Unit T1/S1)
(Full Profile Descriptions, Table 1 and 2)

This soil, formed on drift deposits occurs over the whole of the site. It is characterised by light to medium textured topsoils over very slightly stony to very stony medium to heavy textured subsoils.

1.6 Soil Resources

(i) Topsoil

Unit T1 occurs over the whole site. It is light to medium textured and typically consists of medium sandy loam and medium clay loam. The soils are very slightly to slightly stony, containing 5 to 12% small, medium and large subrounded and subangular hard stones. The topsoil has a moderately developed medium to coarse subangular blocky structure and a median thickness of 30 cm.

Unit S1 also occurs over the whole site. It is medium to heavy textured and consists of medium clay loam, sandy clay loam and heavy clay loam. Small areas of lighter textured loamy sands and sandy loams also occur over the site. Stone

content varies from very slightly to very stony (5 - 50% small, medium and large rounded, subrounded and subangular hard stones). Structure is moderately developed medium to coarse subangular blocky. Variability in soil texture is a feature of the subsoils over the site, with stony and sandy patches frequently occurring. Mean thickness is 90 cm.

2.0 SOIL PROFILE DESCRIPTIONS

Table 1 Light/Medium over medium/heavy soil, T1/S1

Profile Pit 1 (Near Auger boring 4)

Slope	2°
Land Use	Arable
Weather:	Overcast, recently very wet.

Depth cm	Horizon Description
0 - 30	Dark brown 10YR3/3 medium sandy loam; no mottles; very slightly stony (approximately 5% small and medium subangular and subrounded stones); moist; moderately developed coarse subangular blocky structure; firm soil strength; moderately porous; slightly sticky; slightly plastic; few coarse fibrous roots; non calcareous; abrupt smooth boundary.
30 - 60	Dark brown 75YR4/4 medium sandy loam; no mottles; very slightly stony (approximately 2% small and medium subangular and subrounded stones); moist; moderately developed medium subangular blocky structure; friable soil strength; moderately porous; slightly sticky; slightly plastic; no roots; non calcareous; clear smooth boundary.
60 - 120	Yellowish brown 10YR5/8 loamy medium sand; no mottles; stoneless; moist; moderately developed medium subangular blocky structure; friable soil strength; very porous; non plastic; non sticky; no roots; non calcareous.

2.1 Table 2 Light/medium over medium/heavy soil T1/S1

Profile Pit 2 (Near auger boring 2)

Slope: 3°
Land Use: Arable
Weather: Overcast, recently very wet.

Depth cm	Horizon Description
0 - 30	Dark Brown 10YR3/3 medium clay loam; no mottles; very slightly stony (approximately 5% small and medium subangular and subrounded stones); moist; moderately developed medium subangular blocky structure; firm soil strength; moderately porous; slightly sticky; slightly plastic; few coarse fibrous roots; non calcareous; abrupt smooth boundary.
30 - 70	Dark brown 75YR4/4 sandy clay loam; no mottles; very slightly stony (approximately 7 - 8% small and medium subangular and subrounded stones); moist; moderately developed medium subangular blocky structure; firm soil strength; moderately porous; slightly sticky; moderately plastic; few fine fibrous roots; non calcareous; clear smooth boundary.
70 - 120	Dark brown 75YR4/4 heavy clay loam; no mottles; very slightly stony (approximately 3 - 5% small and medium subangular and subrounded stones); moist; moderately developed coarse subangular blocky structure; very firm soil strength; moderately porous; moderately sticky; moderately plastic; few fine fibrous roots; non calcareous.

3. AGRICULTURAL LAND CLASSIFICATION

The ALC grades occurring on this site are as follows:

Grade/Subgrade	Hectares	Percentage of Total Area
1	-	
2	4.5	34.1
3a	7.4	56.1
3b	1.3	9.8
4	-	
5	-	
(Sub total)	13.2)	(100)
Urban	-	-
Non Agricultural	-	-
Woodland - Farm	-	-
- Commercial	-	-
Agricultural Buildings	-	-
Open Water	-	-
Land not surveyed	-	-
(Sub total)	(-)	(-)
TOTAL	13.2	100

3.1 Grade 2

Land in this grade occurs in a central band running from north to south through the site. Soils consist of very slightly stony medium sandy loam and medium clay loam topsoils overlying very slightly stony medium clay loam and sandy clay loam upper subsoils. These in turn overly very slightly stony, occasionally gleyed heavy clay loam subsoils. Profiles are well to moderately well drained (falling in Wetness Classes I and II). Occasional pockets of lighter loamy sand and sandy loam occur over the area.

This land is limited to Grade 2 by slight soil droughtiness and topsoil stoniness.

3.2 Subgrade 3a

Land in this subgrade occurs to the east and west of the Grade 2 land. Soils consist of slightly stony, (5% stones over 6 cm size and 4 - 5% stones over 2 cm size) medium sandy loam and medium clay loam topsoils. These overlie very slightly stony medium clay loam and gleyed slowly permeable heavy clay loam and clay subsoils. Pockets of sand and gravel are found at depth. Soils are well to imperfectly drained (Wetness Class I to III) and the land is limited to Subgrade 3a by topsoil stoniness and variability in soil physical properties.

3.3 Subgrade 3b

Soils within this subgrade are limited to two small areas the east and north west of the site. Soils consist of very slightly stony (12% hard stones) medium sandy loam topsoils, overlying very stony (50% hard stones) medium sandy loam subsoils. Soils were found to be impenetrable below 80 cm. Soils are well drained (Wetness Class I) and the land is limited to Subgrade 3b by severe soil droughtiness.

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MAP